U.S Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: QUALITY CONTROL OF CONSTRUCTION FOR AIRPORT GRANT PROJECTS

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Initiated by: AAS-200

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Change:

. PURPOSE. This advisory circular (AC) provides information to ensure the quaiity cf construction accomplished under the Federal Aviation Administration's (FAA) airport grant program.

2. BACKGROUND. Tne Fecieral Aviation Administration has the responsibility of determining tnat all construction work accomplished under the airport grant program is in accordance with the contract documents. A recent report issued by the Office of the inspector General indicated that in some instances work performed was'not accomplished in compliance With the plans and specifications. In addition, quantities of materials used were not properly measured and documented, and testing or quality assurance procedures were inadequate.

3. GENERAL. In order to ensure that the materials and workmanship incorporated into a project are in conformity with the requirements of the approved plans and specifications, the sponsor, the sponsor's engineer, and the FAA project engineer must assume the responsibilities outlined in paragraphs 4 5, and 6.

4. SPONSOR RESPONSIBILITIES. 'The sponsor is responsible for all project engineering including the preparation of plans and specifications, construction supervision, and inspection and testing for quality control. If the sponsor does not have the staff or the expertise to perform these services then a consulting engineering firm should be retained. The consultant represents the sponsor and has overall responsibility for reporting on the acceptability and quality of the work. The relations of the consultant with the sponsor shall be clearly defined by a written agreement before the start of work.

a. Engineering Services. AC 150/5100-14, Architectural, Engineering, and Planning Consultant Services for Airport Grant Projects, current edition, provides a checklist of items that should be included in a contract for engineering services. In somes cases the sponsor may retain an inaependent firm to perform testing for project control. It is, therefore, extremely important that the contract clearly delineate the division of responsibility and authority between the sponsor, the consultant, and the testing firm. For example, the agreement should define the party responsible for designating the location and number of tests, for interpreting test results, and for follow-up procedures for failing test results.

b. Predesign and Preconstruction Conferences. Predesign and preconstruction conferences conducted by the sponsor should be held to discuss various items including testing and quality control. AC 150/5300-9, Predesign, Prebid and Preconstructon Conferences for Airport Grant Projects, current edition, provides guidance for conducting such conferences.

c. Supervision and Inspection. The sponsor shall provide adequate and qualified engineering supervision and construction inspection during all stages of the work. FAA may request the sponsor to furnish a written assurance that it has reviewed the qualifications'of personnel who will be performing these functions and that they are qualified to do so.

5. ENGINEER'S RESPONSIBILITIES. The basic services normally required for airport development projects are the preliminary phase, design phase, bidding phase, and construction phase. The design and construction phases are directly related to quality control. AC 150/5100-14 contains a listing of activities normally performed during these phases.

a. Design Pnase. The design phase includes all activities required to accomplish a canplete project design, including development of plans and specifications.

(1) Plans and Specifications. The standards contained in AC 150/5370-10, Standards for Specifying Construction of Airports, current edition, relate to materials and methods used in the construction of airports and must be used for projects funded under the FAA's airport grant program. Although these specifications reflect the latest acceptable standards, practices, and techniques in airport construction, they are general in scope. For contract purposes the various permissible options with regard to local materials, methods, and quality control testing must be defined in the contract documents.

In particular, the minimum testing frequency for job control must be specified in the project specifications. AC 150/5370-4, Procedures Guide for Using tne Standard Specifications for Construction of Airports, current edition, provides guidance concerning the type of tests and the testing frequency.

b. Construction Pnase. The construction phase includes all activities required after the award of a construction contract. The basic services of an engineering agreement normally include periodic inspection of the work in progress but not the services of a full-time resident engineer or inspector. Full-time inspection may be provided by the sponsor or by the consulting engineer under a supplemental agreement. In some instances tile sponsor may negotiate a separate agreement for services to be provided during this phase.

(1) Resiaent Engineer. The resident engineer shall have field experience in the type of work to be performed, be fully qualified to make interpretations, decisions, field computations, etc., and have knowledgt of testing requirements arid procedures. The resident engineer shall have the autnority to reject both unsatisfactory workmanship and materials. Primary duties are as follows:

(i) Check construction activities to *ensure* compliance witn the plans and specifications. Inform tne contractor of any work that is in noncompliance.

(ii) Ensure that all testing required by the specification is perf'ormed. All commercially produced products, such as pipe and reinforcing Steel, that are used on the project should be accompanied by numerical test results or a certification from the manufacturer that the material meets the applicable standards.

(iii) Visit the testing laboratory to determine if it has the equipment and qualified personnel necessary to conduct the tests required by the specifications.

(iv) Ensure that tests are performed at the frequency stated in the specifications. Determine when and where tests will be taken and witness testb. If not indicated in the specifications, a sufficient number of tests should be taken to verify that the construction is acceptable.

(v) Review test reports and certifications for conformance with the specifications. Each test report for material in-place should, as a minimum, contain the following:

(A) Test performed, and date.

(B) Applicable standard or project specification.

(C) Test location.

(D) Test result.

(E) Action taken on failing tests.

(F) Lot size and location and adjusted contract price when statistical acceptance procedures are specifiecl.

(vi) Maintain a file of test reports and certifications.

(vii) Inform the contractor of deficiencies in. order that corrections can be made and retesting performed prior to covering any substandard work with additional material.

(viii) Document quantities of materials used on the project by actual measurements and computations in a field notebook or computer printouts retained in a folder. For materials paid for on a weight basis, a summary Of the material placed each day snould be kept in the field notebook. The notebook and/or canputer printouts, supported by the original set of weigh tickets, is the basis for payment.

(ix) Maintain a set of working drawings, on the Job Site, which can be used to prepare "as- built" drawings.

. (x) Review payment requests from the contractor.

(xi) Maintain a diary which should contain daily entries made and signed by the resident engineer. Each entry should include the following, plus any additional pertinent data:

(A) Date and weather conditions.

(B) Names of important visitors.

(C) Construction work in progress and location.

(D) Size of contractor's work force and equipment in use.

(E) Number of hours worked per day for contractor and subcontractors.

(F) The substance of Important conversations with the contractor concerning conduct, progress, changes, test results, interpretations of specifications or other details.

(xii) Submittal of FAA Form 5370-1, Construction Progress and Inspection Report, or equivalent form to the appropriate FAA field office. The frequency of submittal shall be established at the preconstruction conference.

6. FAA PROJECT ENGINEER RESPONSIBILITIES. The FAA project engineer has the responsibility to monitor the project to assure that the terms and conditions of the grant agreement are met; to maintain a broad overview of the construction to be reasonably certain that the work is accomplished in accordance with the plans and specifications; and to evaluate tne adequacy of the sponsor's construction inspection. FAA project oversight does not relieve the sponsor of his/her responsibility to ensure adequate supervision and inspection during all stages of the work, and to ensure the work is in conformance with the plans and specifications.

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